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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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Michael Richard Richardson

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EXAMINER

MCKIE, GINA M

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary**Application No.**

10/521,745

Applicant(s)RICHARDSON, MICHAEL
RICHARD**Examiner**

GINA MCKIE

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 27 April 2010.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 and 3 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 and 3 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 January 2005 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application on March 26, 2010, after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on March 26, 2010 has been entered.

Response to Amendment

2. Acknowledgement is made of the amendment filed March 26, 2010. Claims 1 and 3 remain pending in the application.

- Claims 1 and 3 are currently amended.
- Claims 2 and 4 have been previously canceled.
- No claims are new.

Response to Arguments

Claim Rejections - 35 USC § 103

3. Applicant's arguments with respect to the rejection of claim 1 under 35 U.S.C. 103(a) as being unpatentable over Fielder et al. (US 5,109,417) have been considered but are moot in view of the new ground(s) of rejection.

4. Applicant's arguments with respect to the rejection of claim 3 under 35 U.S.C. 103(a) as being unpatentable over Fielder et al. (US 5,109,417) in view of Daspit et al. (U.S. Patent No. 3,754,101) have been considered but are moot in view of the new ground(s) of rejection.

New Grounds of Rejection

5. Applicant amended claim 1 to recite, "...establishing time characteristics of the unwanted signal bursts to establish their positions in a portion of said received signal..." and argues that the errors of Fielder do not correspond to the regular burst of unwanted interference in claim 1 because the errors of Fielder are created during the processing of the signal, and thus are not present in the *received* signal that is to be processed (see REMARKS, page 4, lines 14-17). Therefore, the amendment to claim 1 necessitates the new grounds of rejection presented below.

Drawings

6. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "time domain sinusoidal window" must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended

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replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

7. The drawings are objected to under 37 CFR 1.83(a) because they fail to show a “sinusoidal window function having zero crossings arranged to coincide with the mid-points of the interference bursts” as described in the specification (see page 4, lines 13-15). Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the

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appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

8. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

9. Claims 1 and 3 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

Claim 1 recites the limitation "generating a time domain window function using said established timing characteristics, said time domain window function being a

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sinusoidal function having a zero crossing substantially coinciding with the position of each of the regular bursts of unwanted signal." However, this limitation is not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention. For instance, it is unclear how one generates a sinusoidal window function having a zero crossing substantially coinciding with the position of each of the regular bursts of unwanted signal. One of ordinary skill in the art would interpret "sinusoidal window function" to mean that zero values are outside the window and that said function does not "cross" zero. How are the timing characteristics used to generate the window? Too many details are missing from the specification to enable one of ordinary skill in the art to make and/or use the invention.

Claim 3 recites the limitation "applying an algorithm to restore the shape of peaks in the transformed signal to an approximation of their form in the absence of said regular bursts of unwanted signal." It is unclear to one of ordinary skill in the art what said algorithm is and how said algorithm functions. The algorithm was not described in the specification in such a way as to enable one skilled in the art which it pertains, or with which it is most nearly connected, to make and/or use the invention.

10. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

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11. Claims 1 and 3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

12. The term "substantially" in claim 1 is a relative term which renders the claim indefinite. The term "substantially" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be reasonably apprised of the scope of the invention.

Claim Rejections - 35 USC § 103

13. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

14. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Fielder et al. (US 5,109,417).

Regarding claim 1:

As shown in figures 4-6, Fielder discloses a method for digitally processing a received signal in a frequency domain containing regular bursts of unwanted signal with the received signal (**see col. 15, lines 43-46; "...a discrete transform will erroneously create nonexistent spectral components because the transform assumes the signal in the block is periodic"**), the method comprising the steps of:

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- (i) establishing timing characteristics of the regular bursts of unwanted signal to establish their positions in a portion of said received signal (**see FIG. 5 and col. 15, lines 46-48; “These transform errors are caused by discontinuities at the edges of the block as shown in FIG. 5”**);
- (ii) generating a time domain window function using said established timing characteristics, said time domain window function being a sinusoidal function having a near-zero crossing substantially coinciding with the position of each of the regular bursts of unwanted signal (**see FIG. 6c and col. 15, lines 48-51; “FIGS. 6a through 6d illustrate how a block is modified or weighted such that the samples near the block edges are close to zero”**)and
- (iii) applying the generated sinusoidal window function to said signal portion to selectively reduce the amplitude of said regular bursts of unwanted signal relative to other elements of said received signal in an output signal (**see FIG. 6d and col. 15, lines 51-55; “The multiplier circuit shown in FIG. 6a modulates the sampled input signal $x(t)$ shown in FIG. 6b by the weighting function shown in FIG. 6c”**).

Fielder discloses that samples near the block edges are *close to* zero, but does not specifically disclose a “zero crossing” substantially coinciding with the position of each unwanted signal burst.

It would have been obvious to one of ordinary skill in the art at the time the present invention was made to make the samples at the block edges zero to better (more completely) eliminate any discontinuities at the block edges. Thus, after applying the window function, the discontinuities at the edges of the finite time interval which

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cause the transform to create phantom high-frequency components, would be more fully eliminated (**see Fielder, col. 3, line 25 – col. 4, line 47**).

15. Claim 3 is rejected under 35 U.S.C. 103(a) as being unpatentable Fielder as applied to claim 1 above, and further in view of Daspit et al. (U.S. Patent No. 3,754,101).

Regarding claim 3:

Fielder discloses a method according to claim 1, further comprising the steps of:

- (iv) applying a Fourier transform to the output signal to provide a transformed signal (**see Fielder, col. 17, lines 5-9; “A single FFT can be used to perform the DCT and DST simultaneously...”**).

However, Fielder does not specifically disclose: (v) applying an algorithm to restore the shape of peaks in the transformed signal to an approximation of their form in the absence of said regular bursts of unwanted signal.

Daspit, however, discloses applying an algorithm to restore the shape of peaks in the transformed signal to an approximation of their form in the absence of said unwanted signal (**see col. 4, lines 21-24 and 40-44 where Daspit discusses double sideband suppressed carrier amplitude modulation**).

It would have been obvious to one of ordinary skill in the art at the time the applicant's invention was made to modify the invention of Fielder as taught by Daspit and apply an algorithm to restore the shape of peaks in the transformed signal to an

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approximation of their form in the absence of said unwanted signal elements, thus allowing the retaining of only the useful spectral elements (**Daspit, col. 4, lines 36-40**).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to GINA MCKIE whose telephone number is (571)270-5148. The examiner can normally be reached on Mon-Fri, 9:00 AM-4:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Shuwang Liu can be reached on 571-272-3036. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Gina McKie/

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Examiner, Art Unit 2611

/CHIEH M FAN/

Supervisory Patent Examiner, Art Unit 2611